

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Original): A method of cutting a cheese wheel having a central axis into wedges comprising:

providing a cheese wheel having a flat end and the curved periphery;

cutting through the cheese wheel with multiple cutters in a first direction to cut a plurality of slabs substantially parallel to the ends of the wheel and abutted one against the other; and

cutting through the abutted slabs with multiple cutters disposed to cut each slab into a plurality of wedges each having an end with a peripheral curved surface.

Claim 2 (Original): A method in accordance with Claim 1 comprising:

trimming the curved periphery of the cheese wheel to a substantially uniform diameter so that the wedges are of substantially equal weight and size.

Claim 3 (Original): A method in accordance with Claim 1 comprising:

providing sliced wedges of varying sizes and weights resulting from the differences in radial distance of the curved periphery from a central axis of the cheese wheel for respective wedges cut from the same cheese wheel.

Claim 4 (Original): A method in accordance with Claim 1 comprising:

cutting the cheese wheel with cutters that are staggered to cut the cheese wheel to avoid substantial compressing of the cheese between adjacent cutters.

Claim 5 (Original): A method in accordance with Claim 4 wherein the cutters are staggered knives for engaging the cheese at successive intervals in time.

Claim 6 (Original): A method in accordance with Claim 1 comprising:
positioning the cheese wheel with the central axis of the cheese disposed vertically;
cutting through the cheese wheel with a first set of knife cutters that move relative to the cheese wheel in spaced, substantially horizontal planes to cut the cheese wheel into the slabs.

Claim 7 (Original): A method in accordance with Claim 6 comprising:
cutting through a cheese wheel with a second set of knife cutters moving relative to the cheese wheel in substantially vertical planes to cut through the slabs to cut the respective slabs into wedges.

Claim 8 (Original): A method in accordance with Claim 7 comprising:
cutting the cheese wheel with profile knives moving vertically to profile the outer peripheral surface of the cheese wheel into a uniform diameter cylindrical surface.

Claim 9 (Original): A method of cutting a cheese wheel having a central axis into wedges comprising:
positioning the cheese wheel into position at a cutting station;
moving the cheese wheel relative to a first set of cutters to cut the cheese into slabs at the cutting station;
moving a second set of cutters relative to the slabs to cut the slabs into wedges;
and
transferring cut wedges from the cutting station to allow positioning of another cheese wheel into the cutting station.

Claim 10 (Original): A method in accordance with Claim 9 wherein the cutting into slabs comprises:
staggering the cutters and their engagement with the cheese wheel so as not to compress the cheese between adjacent cutters moving through the cheese.

Claim 11 (Original): A method in accordance with Claim 9 wherein the cutters for cutting the slab are staggered knives movable in a horizontal direction relative to the cheese wheel and wherein the cutters for cutting the cheese wheel into wedges comprise staggered knives in the vertical direction, and moving the staggered knives to necessarily engage the cheese wheel.

Claim 12 (Original): A method in accordance with Claim 9 comprising:
pushing the cheese through the first set of cutters to form the slabs.

Claim 13 (Original): A method in accordance with Claim 12 wherein the pushing of the cheese comprises:

pushing the cheese through stationary cutters.

Claim 14 (Original): A method in accordance with Claim 9 comprising:
placing the cheese slabs on a cutting support; and
cutting the cheese with vertically moving cutters to form the wedges stacked on the cutting support.

Claim 15 (Original): A method in accordance with Claim 14 comprising:
moving vertically traveling staggered cutter comprising:
knives in a vertical direction to cut the cheese on the support to form the wedges stacked on the cutting support.

Claim 16 (Original): A method in accordance with Claim 15 comprising:
moving the vertical traveling, staggered knives to a position below a lower end for the cheese wheel; and
transferring the cheese wedges by pushing the cheese from the support while the vertical knives are below the level of the cheese wheel.

Claim 17 (Original): A method in accordance with Claim 9 comprising:
after cutting the cheese wheel into slabs, trimming the outer curved surface of the wheel to form a substantially uniform diameter profile whereby the cut wedges are substantially identical in size and weight.

Claim 18 (Original): A method of cutting a cheese wheel having a central axis and an outer peripheral curved surface into wedges comprising:
conveying the cheese wheel into a cutting station;
pushing the cheese wheel through horizontal cutting blades to form a stack of slabs resting on a cutting support;
vertically traveling a profile cutter to cut the peripheral curved surfaces of the stacked slabs into a substantially uniform diameter for the stack of slabs on the support;
cutting the slabs with vertically traveling knives to cut the slabs into substantially equal wedges; and
transferring the cut wedges from the cutting station.

Claim 19 (Currently Amended): A method in accordance with Claim 19 18 wherein the horizontal cutting blades are staggered in a vertical direction.

Claim 20 (Original): An apparatus for cutting a cheese wheel having a central axis, a flat end, and a curved periphery into wedges, the apparatus comprising:
multiple cutters for cutting through the cheese wheel in a first direction to cut a plurality of slabs in one direction relative to the ends of the wheel and abutted one against the other; and
multiple cutters for cutting through the abutted slabs with multiple cutters disposed to cut each slab in a second direction relative to the ends of the wheel.

Claim 21 (Currently Amended): The apparatus of claim 21 20 wherein one direction relative to the ends of the wheel is substantially parallel to the ends of the wheel, and wherein each slab is cut in a second direction into a plurality of wedges each having an end with a peripheral curved surface.

Claim 22 (Original): An apparatus for portioning a cheese wheel with a central axis, the apparatus comprising:

a first set of cutters oriented to portion a cheese wheel in a first direction relative to the central axis;

a second set of cutters oriented to portion the cheese in a second direction relative to the central axis; and

at least one member for providing relative between the cheese wheel and the first set of cutters to direct the cheese wheel through the one set of cutters and into a position for the other set of cutters to portion the cheese wheel, wherein one of the sets of cutters is staggered.

Claim 23 (Currently Amended): The apparatus of claim 23 22 wherein one of the sets of cutters includes a plurality of cutters in an array.

Claim 24 (Currently Amended): The apparatus of claim 23 22 wherein the cheese wheel is supported on a surface for portioning by the first set cutters, and wherein the member is passable between one set of cutters and the surface

Claim 25 (Currently Amended): The apparatus of claim 23 22 wherein the first set of cutters is substantially vertically oriented and portions the cheese wheel in a substantially vertical direction relative to the central axis, and wherein the second set of cutters is substantially horizontally oriented and portions the cheese wheel in a substantially horizontal direction relative to the central axis.

Claim 26 (Currently Amended): The apparatus of claim 26 25 wherein the vertical cutters are in a diametral diametrical array.

Claim 27 (Original): The apparatus of claim 26 wherein the horizontal set of cutters is staggered so the horizontal cutters do not overlap in any lateral, vertical cross-section of the cheese wheel.

Claim 28 (Original): The apparatus of claim 26 wherein the substantially vertical set of cutters includes a cylindrical blade oriented to cut a periphery of the cheese wheel.

Claim 29 (Original): The apparatus of claim 26 wherein the vertical set of cutters is staggered so the vertical cutters do not overlap in any horizontal cross-section of the cheese wheel.

Claim 30 (Original): The apparatus of claim 26 wherein the horizontal set of cutters portions the cheese wheel into smaller wheels with substantially identical height.

Claim 31 (Currently Amended): The apparatus of claim 31 30 wherein the horizontal set of cutters is staggered so the horizontal cutters do not overlap in any lateral, vertical cross-section of the cheese wheel.

Claim 32 (Original): The apparatus of claim 27 wherein the cutters of the vertical set of cutters are secured at their ends.

Claim 33 (Currently Amended): The apparatus of claim 33 22 further comprising a shell wherein the ends of the cutters of the vertical set of cutters are secured to an inner surface of the shell.

Claim 34 (Currently Amended): The apparatus of claim 34 33 wherein the shell is cylindrical, the inner surface of the shell is cylindrical, the apparatus further including a plurality of threaded posts passing through the wall of the shell, wherein each blade of the vertical set of cutters includes a threaded receiver each receiving a threaded post for securing the cutter in the shell.

Claim 35 (Original): The apparatus of claim 23 further including a platform onto a top surface of which the cheese wheel may be displaced by the member.

Claim 36 (Currently Amended): The apparatus of claim 36 35 wherein the platform includes channels for receiving one of the sets of cutters.

Claim 37 (Currently Amended): The apparatus of claim 37 36 wherein the channels have staggered depths corresponding to a staggered orientation of the set of cutters received by the channels.

Claim 38 (Original): The apparatus of claim 37 further comprising a cylindrical blade oriented to cut a periphery of the cheese wheel wherein the platform is sized to avoid interfering with the cylindrical blade.

Claim 39 (Original): The apparatus of claim 34 further comprising:
a drive system including a bracket secured to the shell for moving the vertical set of cutters in a vertical direction; and
a removal member for removing the cheese from the platform, wherein the bracket is mounted to the periphery of the shell and connected at a distance above the cheese so as to avoid interfering with the cheese when the vertical set of cutters is lowered for cutting the cheese, and wherein the bracket permits the removal member to displace the cheese after the cheese has been cut and with the vertical set of cutters lowered.